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10 JAN 1983

A FUNCTIONAL DIRECTORY

Office of Data Processing

Computer Facilities

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(PG/CSS/P/ODP)

PREFACE

The goals of this directory are twofold: to describe some of the computing services that the Office of Data Processing (ODP) provides and define how a general user can gain access to these services, and to offer some insight into the hardware and software used and the support services available.

The information is arranged in four sections:

1. "Overview of ODP Services" gives you an overview of the ODP services available to the general user, the security measures taken to protect data, and the ways in which ODP helps you use its computers.

2. "Hardware" summarizes the equipment used in ODP's complex service network.

3. "Software" lists and briefly describes ODP's system software, language processors, and program products.

4. "Support Services" tells you how you can gain access to the ODP computers and what additional services are available to help you meet your data processing requirements.

As background information, Appendix A gives a broad picture of ODP's mission, organization, and functions; Appendix B defines unfamiliar acronyms and abbreviations; and a list of References shows the source material used in preparing this document and gives you a starting point for obtaining further information on topics covered herein.

ODP hopes that this directory will answer some of the questions you, the user of ODP services, have about computer capabilities available to you. Additional information on most ODP hardware and software is available through the ODP Technical Library, GA19, extension STAT [redacted]

ODP Computer Facilities: A Functional Directory

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1. OVERVIEW OF ODP SERVICES

1.1 GENERAL INFORMATION

ODP's mission is to provide a central computer service to the Agency and the Intelligence Community. ODP consists of two major units, Processing and Applications. Processing/ODP maintains ODP's hardware and production software; Applications/ODP provides applications programming services for Agency components (reference Appendix A, "ODP: Mission, Organization, and Functions").

As its primary function, ODP supplies interactive and batch computing services to you, the Agency user. These two services allow you to develop and execute your own programs in a variety of languages, use existing library programs, and store and retrieve information in a data base.

The computer systems for each service are large-scale IBM-compatible mainframes, located at the Ruffing Computer Center, GCO3 Headquarters. Associated data processing equipment includes communications links, storage devices, terminals, high- and low-speed printers, plotters, and word processors.

A communications network connects all the ODP equipment. This network also links the interactive system to the Printing and Photography Division (P&PD), to give you reproduction-quality output through the Electronic Text-Editing and Composition System (ETECS) and computer output microfilm through the DICOMED COM system, and links the batch system to a DATACOM Cable-Dissemination System (DATACOM/CDS), to provide access to a message-processing system for cable traffic called Message Processing System/Bulk Data Service (MPS/BDS) (reference Section 2, "Hardware").

ODP also maintains other computers used for special purposes. Because those specialized services are not available to the general user, they are not discussed in this document.

1.2 INTERACTIVE SYSTEM

The interactive Virtual Machine (VM) System allows you to enter commands at a remote terminal and establish your own virtual machine environment. The virtual machine gives you a personalized machine for processing work or communicating with other virtual or real machines connected to the Ruffing Computer Center VM network--for example, the batch system, ETECS, CDS. (Reference Table 1, "Summary of Interactive Service," page 4.)

The interactive system control software has two main components: the Control Program (CP), which controls the resources of the real computer and related equipment and manages the communications functions, and the Conversational Monitor System (CMS), which allows you to work within your virtual machine, for example, to create and modify data files. Tape management is provided by Tape Management Software (TMS) and TAPEMON.

A program called BATCHMON (Batch Monitor), developed in-house, links the interactive and batch services so that you can submit batch jobs from the interactive system. Most batch jobs are now submitted interactively. BATCHMON gives you control over jobs submitted for batch processing and simplifies preparation of complex jobs.

A CMS text editor, XEDIT, enables you to edit existing files or create new ones. You can write programs in PL/I (the Agency standard), or in ALC (Assembly Language Code), APL, BASIC, C Language (a low-level language useful in managing and organizing textual information), COBOL, FORTRAN, and PASCAL. You can also access library programs for text formatting and for mathematical and statistical, modeling, graphics, and data base management applications (reference Section 3, "Software").

Another service on the interactive system is Automatic Information Management (AIM). AIM is an electronic mailing service developed by ODP that permits you to create, edit, send, receive, and file documents and to obtain hard-copy output.

1.3 BATCH SYSTEM

The batch service accumulates batch jobs and processes them in order, according to a predetermined priority scheme. The current batch service is run using IBM's Multiple Virtual Storage/Job Entry Subsystem 3 (MVS/JES3) operating system complex. (Reference Table 2, "Summary of Batch Service," page 5.)

Like the interactive system, the batch system includes language processors--for ALC, COBOL, FORTRAN, and PL/I--and it offers you a library of program products in mathematical and statistical, modeling, and graphics applications (reference Section 3, "Software").

The MVS/JES3 Batch System also supports an online application, the Generalized Information Management System (GIMS), that gives you access to data from a remote terminal by using a highly structured software interface language. A product of TRW, GIMS is designed for Agency clients who have large, complex information-handling requirements (for example, inventory control, personnel data, control of medical records). Each GIMS application is password-protected against access by unauthorized users.

1.4 COMPUTER SECURITY

As in all timesharing installations, computer security is a major ODP concern. When using ODP facilities, you must, of course, follow normal Agency security practices for dealing with classified material. Further, the vast amount of information stored on Agency computer systems necessitates additional security measures:

- The ODP computer centers restrict physical access to the computers and related equipment by means of a badge reader. Individuals without the proper authorization must be escorted by an authorized person who has obtained prior permission for the visit.

- The interactive system requires that you enter a user identification (userid), password, and project and resources information systems (PRISM) number to use the system.

- On the batch system, the Access Control Facility (ACF2) software has been installed to enhance security. ACF2 offers the originator of a dataset various options to control access to data stored on disks and tapes in the center.

- The GIMS (online) system requires that you enter a userid and password.

- All ODP computer centers require that you provide a classification for all your printed computer output. A facility called CLASSIFY, available on both the batch and interactive systems, prints a user-specified classification at the top and bottom of each page of all or selected datasets. The system will not print computer output that has not been given a classification.

- Users of ODP systems are responsible for ensuring that their magnetic media data are properly protected from destruction by following the established procedures described in [redacted] Records Disposition Handbook, Appendix E. STAT

1.5 USER ASSISTANCE

To gain access to any of the ODP computing services, you will normally want to contact first your component's ADP Control Officer, the individual who has been assigned responsibility for the ADP activities of your component. The ADP Control Officer will give you access to the batch and interactive systems and obtain the userid, passwords, and disk space you need.

To assist you further, Processing/ODP:

- Provides administrative, consulting, library, and documentation services through the Customer Services Staff (CSS).

- Includes a HELP facility on the interactive system that explains use of commands at the terminal.

- Maintains a Trouble Desk 24 hours-a-day.

In addition, Applications/ODP:

- Develops, implements, and maintains applications software for client offices within the Agency.

- Offers training--both formal and self-study courses--in conjunction with the Office of Training and Education (OTE).

For additional information on user assistance, reference Section 4, "Support Services."

Table 1. Summary of Interactive Service

Facility		Capability
Computer System		Large-scale, IBM-compatible mainframe
Software		
	System	Control Program (CP) Conversational Monitor System (CMS) Tape Management (TMS, TAPEMON)
	Editing	XEDIT
	Language	PL/1, ALC, APL, BASIC, C LANGUAGE, COBOL, FORTRAN, PASCAL
	Application	Automatic Information Management (AIM) (electronic mail) Data Base Management (RAMIS) Graphics Mathematical and Statistical Modeling Word Processing (SCRIPT)
Other		Includes BATCHMON software to allow input and processing of batch jobs interactively Includes communications link to P&PD for ETECS and DICOMED COM system

Table 2. Summary of Batch Service

Facility	Capability
Computer System	Large-scale, IBM-compatible mainframe
Software	
System	MVS/JES3
Language	PL/I, ALC, COBOL, FORTRAN
Application	Graphics Mathematical and Statistical Modeling
Online Service	GIMS
Other	Includes communications link to DATACOM/CDS for MPS/BDS

2. HARDWARE

2.1 GENERAL INFORMATION

Hardware is best described as the physical equipment associated with automatic data processing. The hardware presentation given here can only touch on the equipment used in ODP facilities. The aim is to give you a sense of the type of equipment available in ODP's complex system (reference Figure 1, "Hardware Overview," page 12, and Table 3, "Input/Output (I/O) Devices," page 13).

2.2 CENTRAL PROCESSING UNITS (CPUs)

A number of CPUs are used for the various ODP services. As use of facilities increases yearly, ODP acquires new, more advanced hardware to keep the systems running smoothly and to support newer, more sophisticated user software.

2.3 COMMUNICATIONS LINKS

The communications controllers between the computer systems and your terminal are NCR COMTENs. The COMTENs are small computers; with their associated software, they handle many of the communications functions (such as code translation, polling, addressing, application switching, some protocol enveloping) for the larger host computer, thereby freeing the host computer to process programs and perform more complex functions. Although the COMTENs can serve as stand-alone computers, ODP uses them primarily as a front-end processor (FEP).

In this configuration, a COMTEN at the computer center links the host computers for the interactive and batch services to terminals and other equipment outside the computer center. One COMTEN is also used as a remote concentrator processor (RCP): a COMTEN at the [redacted] building links the I/O devices there, via communications lines, to the FEP and host computer at the Ruffing Computer Center. This RCP is an exception, however. Most communications links to outbuildings are via statistical multiplexers, which are maintained by the Office of Communications. STAT

2.4 STORAGE DEVICES

ODP's current storage devices are magnetic tapes, drums, and disks. Magnetic tapes, called sequential storage media because data must be searched in sequence, are generally used for datasets that are infrequently used or those to be kept for an extended period. Magnetic drums and disks, called direct access storage media because they need not be searched sequentially to locate data, are used for all other purposes.

2.4.1 MAGNETIC TAPES

ODP maintains a tape library housing over 30,000 tapes. Primary tape densities used are 1600 and 6250 bits-per-inch (bpi); a gradual upgrade to 6250-bpi densities is in progress.

ODP processes essentially three types of tapes:

- ODP Headquarters tapes are tapes on file in the tape libraries of the ODP center and may not be released outside the Agency. These tapes are controlled and managed by Tape Management Software (TMS). Some inactive or backup Headquarters tapes are stored at the Agency Archives and Records Center; these offsite storage tapes require 24 hours for retrieval.

- Y-tapes are new tapes supplied by ODP and issued to users for output processing; these tapes may be released outside the Agency. Y-tapes are also under TMS control.

- Z-tapes are user-owned and submitted to the ODP centers for input processing (READ ONLY). Z-tapes, which are stored in the Ruffing Computer Center for up to 10 days, are not under TMS control.

2.4.2 MAGNETIC DRUMS AND DISKS

Like the mainframes, ODP's online storage devices change rapidly to meet an ever-increasing demand. Current direct access storage facilities consist of magnetic drums, usually for system use, and magnetic disk units, normally used for short-term datasets.

2.5 UNIT RECORD EQUIPMENT

Although ODP discourages the use of cards, a card reader and card punch are available at the Ruffing Computer Center. These units are switchable between the interactive and batch systems. ODP equipment also includes the IBM 029 keypunch, a stand-alone device for punching cards. Requests for use of an IBM 029 keypunch must be made through the ADP Control Officer.

2.6 USER ACCESS FACILITIES

You can access ODP computers and obtain display and low-speed printed output through office data preparation equipment, general-purpose terminals, graphics display terminals, and terminal-associated plotters.

2.6.1 OFFICE DATA PREPARATION EQUIPMENT

Wang word processors and associated printers have become the standard Agency equipment. A service is available to convert disks and cassettes from other word processing equipment to Wang format. Wang/VM interface software is currently being developed. In addition, NBI 3000 series word processors, which

also may have printers attached, are now available in many offices. The NBI can be linked to the VM System. IBM Communicating MAG Card Selectric Typewriters are less frequently encountered.

2.6.2 GENERAL-PURPOSE TERMINALS

Your most visible piece of hardware is a terminal that links you to the central computing system. ODP supports a variety of general-purpose terminals, including the following:

- The Delta Data 5260 and the newer Delta Data 7260T are the video-type, cathode-ray tube (CRT) machines seen most frequently.
- The Dataroyal IPS 5000 C attached to a Delta Data terminal gives you medium-quality, hard-copy output.
- The Design 100 is a typewriter-type terminal that also may be used as a printer.
- The Texas Instruments Silent 700 Electronic Data Terminal is a self-contained electronic page printer; it can be used in conjunction with Delta Data terminals to get low-quality, hard-copy output.

2.6.3 GRAPHICS DISPLAY TERMINALS

Graphics display terminals enable you to design charts, graphs, and pictures. They provide capabilities for high-resolution displays and use of color. Graphics display terminals currently available are as follows:

- The Tektronix 4014 and 4015 terminals display both alphanumeric characters and graphic data. A Tektronix 4015 connected to the interactive system is located in 4F50 Headquarters and is available for general use. A Tektronix 4610 hard-copy unit that generates facsimile copies of the display on the screen of the Tektronix 4015 is colocated with the terminal in 4F50.
- Other terminals available include the Advanced Electronic Design (AED) 512, the Chromatics 7900, and the Ramtek 6200A, 6211, and 6412.

2.6.4 TERMINAL-ASSOCIATED PLOTTERS

You can obtain immediate graphics and plotting output from your terminal through an associated Hewlett-Packard 7721B plotter. This device, available at various Agency locations, is a desk-top, microprocessor-controlled plotter that produces multicolor graphic plots through the interactive system.

2.7 HARD-COPY OUTPUT FACILITIES

In addition to the low-speed printers and plotters associated with various terminals, ODP's hard-copy output facilities in the Ruffing Computer Center include high-speed printers and plotters and specialized output services.

2.7.1 HIGH-SPEED PRINTERS AND PLOTTERS

2.7.1.1 Interactive System

On the interactive system, ODP uses the following equipment:

- The IBM 1403 produces the copy that most people associate with computer hard copy--the continuous-form, fan-fold perforated output.
- The IBM 6670 laser printer (commonly called System 6) produces hard copy on standard 8 1/2 - x 11-inch paper. This printer provides high-quality, camera-ready copy.
- The Hetra Mark VII line printer provides hard-copy output at a rate of 600 lines per minute. Hetra printers are located at Ames, Chamber of Commerce, [redacted] buildings. STAT

You can direct your printed output to any one of these devices or to specific locations. Valid locations include the Ruffing Computer Center or Data Access Centers such as those at 4F50 Headquarters and at Ames, Chamber of Commerce, [redacted] buildings. STAT

Printed output at remote locations generally is produced by Hetra or IBM 6670-type printers. On the interactive system, Hetra printers use the reverse, plain white side of continuous-form paper; they can print in either uppercase-lowercase or all-uppercase characters.

2.7.1.2 Batch System

On the batch system, alternatively, printing facilities are as follows:

- The Xerox 9700 provides high-quality, hard-copy output on standard, 8 1/2 - x 11-inch paper. This printer may also be accessed from the interactive system through the use of BATCHMON.
- The IBM 1403 and IBM 3211 devices provide the standard computer output on continuous-form paper.
- The Versatec 1200-A and Versatec V-80 electrostatic printer/plotters provide a direct means for plotting alphanumeric and graphic data on paper in a variety of combinations. Both these plotters are available at the Ruffing Computer Center.
- The Hetra Mark VII line printer is used on the batch system, as on the interactive system, to print output at remote Data Access Centers. On the batch system, the Hetra printer provides output on the front (lined side) of continuous-form paper in either uppercase-lowercase or all uppercase characters.

Through JES3 FORMAT statements, you can direct your printed output from the batch system to specified printers, remote locations, and individuals. Valid remote locations include the Ames, Chamber of Commerce, [redacted] STAT

STAT [redacted] buildings. If no destination is specified, the system directs output to an IBM 1403 or IBM 3211 printer at the Ruffing Computer Center and puts the originator's name on the listing.

2.7.2 SPECIALIZED OUTPUT SERVICES

Two specialized services available to you are the responsibility of P&PD rather than ODP; however, ODP telecommunications lines from the interactive system are used:

- ETECS offers high-quality printing of textual material originating from electronic media (for example, SCRIPT and NBI).
- The DICOMED COM system reformats computer magnetic tapes to produce 16 mm, 35 mm, or 105 mm microforms. At present, this service is performed offline, but a communications link to the interactive system is planned.

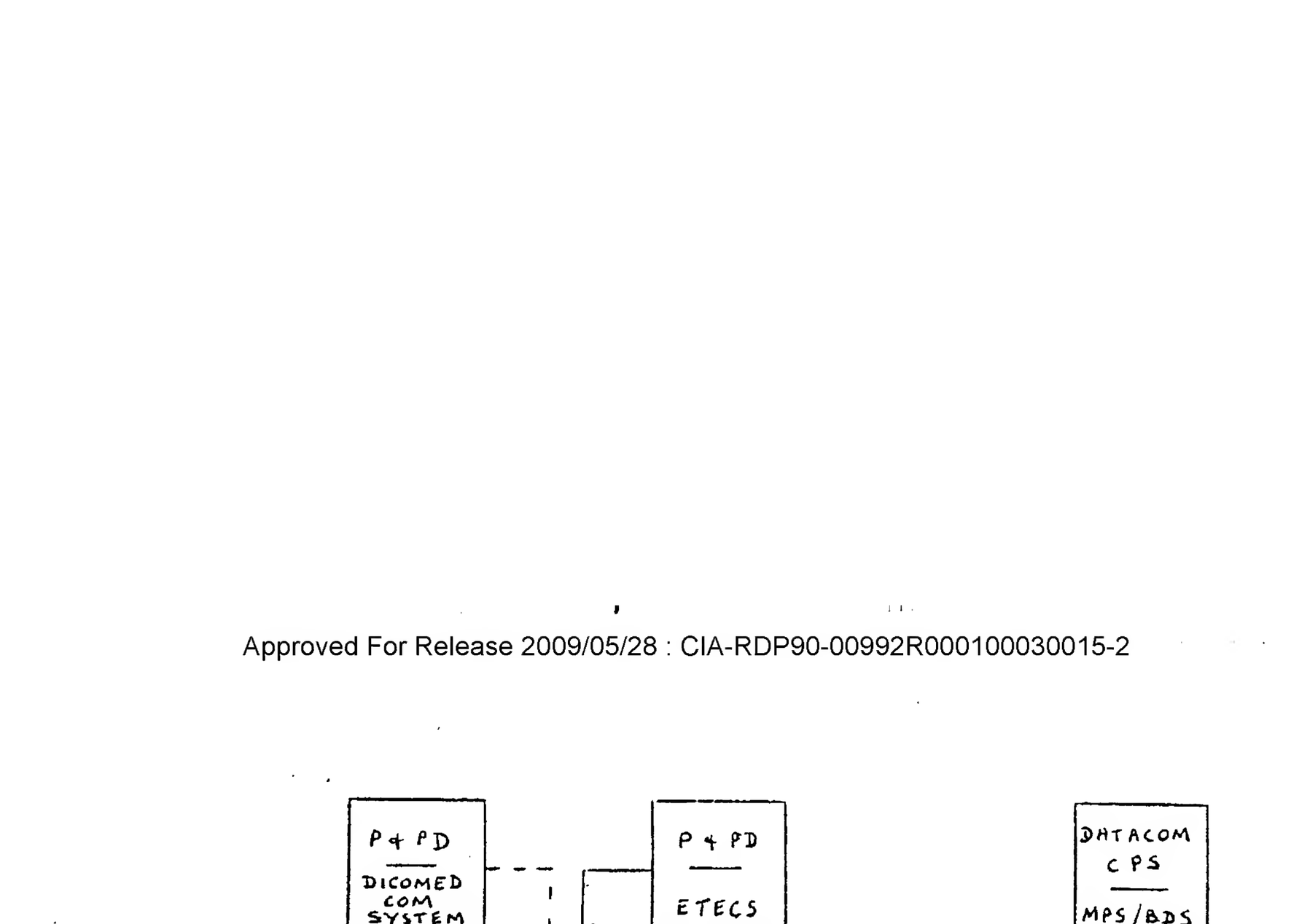

Figure 1. Hardware Overview

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Table 3. Input/Output (I/O) Devices

Office Data Preparation Devices

IBM Communicating MAG Card Selectric Typewriters
Wang word processors (and associated printers)
NBI 3000 series word processors (and associated printers)

User Access Devices (General)

Delta Data 5260
Delta Data 7260T
Design 100 (keyboard/printer)
Dataroyal IPS 5000 C (printer for Delta Data)
Texas Instruments Silent 700 Electronic Data Terminal (printer for Delta Data)

Graphics Display Terminals

Tektronix 4014
Tektronix 4015 (plus Tektronix 4610 hard-copy unit)
Advanced Electronic Design (AED) 512

Graphics Display Terminals (Continued)

Chromatics 7900
Ramtek 6200A
Ramtek 6211
Ramtek 6412

High-Speed Printers

IBM 1403 printer (at RCC)
IBM 3211 printer (at RCC)
IBM 6670 laser printer (VM only, at RCC, 4F50 Hq., and Ames)
Xerox 9700 laser printer (at RCC)
Hetra Mark VII line printer (at Ames, Chamber of Commerce, Plaza A, Credit Union-Plaza B, and Page)

Plotters

Hewlett-Packard 7721B (terminal-associated plotter)
Versatec 1200-A electrostatic printer/plotter (at RCC and Credit Union-Plaza B)
Versatec V-80 plotter (at RCC)

3. SOFTWARE

3.1 GENERAL INFORMATION

Both the interactive and batch systems include control software, language processors, and a library of program products for data base management, graphics, mathematical and statistical, amd modeling applications. The interactive system also includes powerful text-formatting facilities and an electronic mail service.

These software facilities for each system are described briefly in the following paragraphs.

3.2 INTERACTIVE SYSTEM

3.2.1 CONTROL SOFTWARE

The interactive system's control software consists of CP, CMS, TMS, TAPEMON, BATCHMON, and XEDIT.

Name	Description
CP	Control Program. CP, from IBM, is a supervisor program that controls how concurrent users share the system's computing resources. CP gives each user a simulated computer, called a virtual machine, with a user-specified hardware configuration. The virtual machine has two main characteristics: (1) The device address on the virtual machine need not correspond to the actual address of the hardware, and (2) CP keeps card reader, punch, and printer data in temporary files called spool files and controls transmission of the data to and from the actual hardware devices.
CMS	Conversational Monitor System. CMS, from IBM, is used with CP to provide a general-purpose, interactive programming system. It is the operating system of your virtual machine and provides capabilities for file creation, maintenance, and manipulation; use of programming languages; program and command execution control; debugging; and use of utilities.
TMS	Tape Management Software. From University Computing Company, TMS automates and controls magnetic tape records by maintaining a tape management catalog (which functions like a library catalog) and generating reports for computer center personnel.

TAPEMON	Tape Monitor. A real-time program developed in-house, TAPEMON receives and processes your requests for tape drives and tape mounts.
BATCHMON	Developed in-house, BATCHMON enables you to process batch jobs submitted interactively. It includes: CMS BATCH Command (BC), which provides access to the BATCHMON system; Virtual Machine JES3 (VM JES3), which controls job flow and job status information flow between you and remote systems; and VMRSCS, which provides the capability to communicate via telephone lines to remote batch systems.
XEDIT	A context editor from IBM, XEDIT enables you to find data in a file by context rather than by line number and to create and modify files from the terminal.

3.2.2 LANGUAGE PROCESSORS

Language processors available to you on the interactive system are ALC, APL, BASIC, C Language, COBOL, FORTRAN, PASCAL, and PL/1.

Name	Description
ALC	Assembly Language Code. ALC is a machine-oriented language used by systems programmers.
APL	A Programming Language. APL is a sophisticated language with symbolic built-in functions that make it possible to write complicated programs within a simple syntax in a concise form. APL is used in economic analysis.
BASIC	Beginner's All-Purpose Symbolic Instruction Code. A language with a small catalog of commands and a simple syntax, BASIC is used primarily for numerical applications.
C Language	A concise, low-level language that uses modules to perform most programming tasks, C Language quickly and efficiently manages and organizes textual information.
COBOL	Common Business-Oriented Language. A language designed for processing business data, COBOL rarely is used in ODP programming. Most COBOL programs have been translated to PL/I.
FORTRAN	Formula Translation. A language similar in concept to COBOL, FORTRAN is designed for scientific applications and so used in the Agency.

PASCAL	A relatively recent addition to ODP's store of languages, PASCAL is becoming quite popular. It is based on ALGOL and emphasizes structured programming.
PL/I	Programming Language I. The Agency standard and used heavily by Applications/ODP, PL/I is a flexible language intended for problems best solved by a combination of scientific and commercial computing techniques.

3.2.3 LIBRARY PROGRAMS

Program products available to you on the interactive system include the following:

- Data base management - RAMIS II
- Electronic mail - AIM
- Graphics - DISSPLA, ECO, PLOT 10, RAMIS Graphics, SAS/GRAPH, TACK, TELL-A-GRAF
- Mathematics and statistics - IMSL, MPSX/370, P-STAT, SAS, other
- Modeling - CSMP III, DYNAMO, GPSS, APL GPSS
- Text formatting - SCRIPT, SYSPAPER, SYSPUB, EZPUB

3.2.3.1 Interactive System Data Base Management Program

Name	Description
RAMIS II	Rapid Access Management Information System. From Mathematica, Inc., RAMIS II allows you to add, update, or delete data in a data base and to request reports on the data through simple, English-like statements. RAMIS-II provides capabilities for producing graphs, performing calculations and logical operations, and formatting reports as desired. Users can also obtain reports on external, non-RAMIS files. Output can be directed to a terminal, a remote high-speed printer, or an external, non-RAMIS II dataset.

3.2.3.2 Interactive System Electronic Mail Program

Name	Description
AIM	Automatic Information Management. Developed in-house, AIM is an Agency-wide electronic mailing service that enables authorized users to electronically create, edit, transmit, receive, and store documents. AIM permits users to send mail to and receive mail from any other authorized user of the AIM system. Note that AIM complements the electronic mailing capability of the Wang word processor, which is an intraoffice facility.

3.2.3.3 Interactive System Graphics Programs

Name	Description
DISSPLA	Display Integrated Software System and Plotting Language. Developed by Integrated Software Systems Corporation (ISSCO), DISSPLA is available on both the batch and interactive systems and can be used on available ODP graphics devices. DISSPLA facilitates creation of both simple, quick data plots and more sophisticated specialized graphics.
ECO	Extendable Charting Option. Developed by AUI Data Graphics, ECO allows you to produce graphs and charts from datasets entered manually, from preexisting files (for example, SAS, RAMIS), or system editor-created files. ECO is menu-driven and links to TELL-A-GRAF for chart design. ECO output may be generated on plotters or graphics terminals.
PLOT 10	Plot 10 Terminal Control System. Developed by Tektronix, PLOT 10 consists of a comprehensive set of graphics subroutines. PLOT 10 features include: display of bright and dark line segments as well as points; choice of linear, logarithmic, or polar coordinates; and automatic scaling of data.
RAMIS Graphics	The RAMIS PLOT command, which supports point plots, line graphs, bar charts, histograms, and pie charts, generates output for the Tektronix 4014 and 4015 terminals. You must be familiar with the RAMIS reporting language to use this package.
SAS/GRAPH	SAS/GRAPH, which requires a working knowledge of SAS, produces color plots, charts, maps, and other

	displays on the Hewlett-Packard plotters and the Ramtek terminals. SAS/GRAPH also provides contour plots, as well as chloropleth and surface maps, and it plots three-dimensional surfaces.
TACK	Developed by Vista Laboratory, TACK generates output for the Hewlett-Packard 7721B plotter (reference Section 3, "Hardware"), as well as the Tektronix, AED, and Ramtek graphics terminals. TACK applications include interactive map generation and annotation, satellite trajectory simulation and sensor modeling, geographic data display, and several data base management and reporting systems.
TELL-A-GRAF	Developed by ISSCO, TELL-A-GRAF's primary purpose is to simplify access to the repertoire of the DISSPLA system. TELL-A-GRAF permits you to converse with the system in plain English by providing a library of 68 standard plots and 18 basic options that can be invoked by simple sentences. The preprogrammed plots give control to the user who has no programming skills.

3.2.3.4 Interactive System Mathematical and Statistical Programs

Name	Description
IMSL	International Mathematical and Statistical Library. From International Mathematical and Statistical Libraries, Inc., IMSL, available on both the batch and interactive systems, is a set of over 400 FORTRAN computational subroutines.
MPSX/370	Mathematical Programming System Extended/370. From IBM, MPSX/370 and the programs that accompany it constitute a complete mathematical programming system--including a set of procedures for linear, separable, and mixed integer programming as well as matrix integration and report writing aids.
P-STAT	P-STAT is a Princeton University statistical package that provides a powerful system allowing: statistical computations; file-manipulation; and statistical analyses including correlation, regression, factor analyses, and cross tabulation. P-STAT is designed for nonprogrammers and for persons with no statistical background who want the following capabilities: file building and maintenance, data modification, and simple table and report writing. P-STAT may be used interactively and on the batch system.

SAS	Statistical Analysis System. SAS, available on the batch and interactive systems, is a social science statistical software package from the SAS Institute. Its capabilities include: a control language similar to PL/I; output that may take the form of a chart, plot, or formatted report; supported time-series and geometric analysis; and facilities for matrix manipulation.

Agency users of APL also have the following statistical packages available:

1. APL Econometric Planning Language
2. APL Advanced Statistical Library for VSAPL
3. APL Multivariate Time-Series Analysis

Besides the ODP-supported statistical software, the Analytic Support Group, Office of Current Production and Analytic Support (ASG/CPAS), has made available programs that offer ODP interactive system users such capabilities as: probability density functions, interpolation, nonparametric statistics, quadratic programming, and two-stage least-square regression..

While other statistical and business-oriented packages are available from IBM, little use is made of them in the Agency.

3.2.3.5 Interactive System Modeling Programs

Name	Description
CSMP III	Continuous System-Modeling Program III. CSMP III, an IBM product available on both the batch and interactive systems, is based on FORTRAN and is designed to help in developing and executing simulation models of dynamic systems, using differential equations.
DYNAMO	Dynamic Models. DYNAMO, developed at MIT, is a compiler for translating and running continuous models (models described by a set of differential equations). DYNAMO is problem- rather than computer-oriented; the goal is to let you focus attention on building a useful model undistracted by complex computer requirements.
GPSS	General Purpose Simulation System. GPSS V, from IBM, provides the means to test, evaluate, and weigh alternatives of a proposed system without affecting the real system. The language provided is concise and can be adapted to a wide range of problems.

APL GPSS	Also from IBM and on the interactive system, APL GPSS is a GPSS lookalike designed for APL users.

3.2.3.6 Interactive System Text Formatting Programs

Name	Description
SCRIPT	ODP uses SCRIPT, Version 3.7 (usually referred to as SCRIPTX), to format text input; this version of SCRIPT was developed by the University of Waterloo in Canada. SCRIPT formatting is specified by control lines (lines that begin with a control indicator--normally a period followed by two alphabetics).
SYSPAPER	SYSPAPER, developed by the University of Waterloo, is a set of SCRIPT commands to simplify preparation of papers, memorandums, and reports.
SYSPUB	SYSPUB is a set of SCRIPT commands that permits preparation and formatting of various types of documents including papers, theses, and reference publications.
EZPUB	Although not supported by ODP, EZPUB is available to users of ODP systems. A word-processing facility related to SCRIPT developed by ASG/CPAS, EZPUB simplifies preparation of typescripts.

3.3 BATCH SYSTEM

3.3.1 CONTROL SOFTWARE

The batch system's control software consists of MVS, JES3, and ACF2.

Name	Description
MVS	Multiple Virtual Storage. Also called System 370 Operating System/Virtual Storage 2 (OS/VS2), IBM's MVS supervises the execution of jobs on the batch system. Through the virtual storage concept, MVS extends the amount of storage available to each user beyond the available real storage in the computer.

JES3	Job Entry Subsystem 3. IBM's JES3 provides job-entry, scheduling, and output capability to MVS; that is, it performs the functions necessary to ready jobs for execution and to remove job output from the system.
ACF2	Access Control Facility. ACF2, from Schrager Klemens and Krueger, Inc., is a security extension to the IBM MVS Operating System, designed to provide for data protection from unauthorized destruction, disclosure, or modification and for controlled sharing of data.

3.3.2 LANGUAGE PROCESSORS

Language processors available to you on the batch system are ALC, COBOL, FORTRAN, and PL/I (reference Subsection 3.2.2, "Language Processors").

3.3.3 LIBRARY PROGRAMS

Program products on the batch system include the following:

- Data base management - GIMS
- Graphics - CPS-1, DISSPLA, EZPERT, TACK, TELL-A-GRAF, and VERSAPLOT
- Mathematics and statistics - BMDP, CROSSTABS, Data-Text, IMSL, P-STAT, SAS, SLMATH, and SPSS
- Modeling - CSMP III

3.3.3.1 Batch System Data Base Management Program

Name	Description
GIMS	Generalized Information Management System. Developed by TRW, GIMS is a generalized data base management system that enables you to create, maintain, and query a data base. GIMS may be used in online mode, where you communicate with the system from a terminal, or in batch mode, where peripheral devices provide the input and output. Requests for creation of a GIMS data base must be made through Applications/ODP.

3.3.3.2 Batch System Graphics Programs

Name	Description
CPS-1	Contour Plotting System 1. Developed by Radian Corporation, CPS-1 is a general-purpose plotting package. Output is plotted on the Versatec printer/plotter (reference Section 2, "Hardware") in the form of contour plots, gradient vector slope plots, and annotated base maps.
DISSPLA	Reference Subsection 3.2.3.3, "Interactive System Graphics Programs."
EZPERT	From Systonetics, Inc., EZPERT is used to generate charts and diagrams showing cost, schedule, and resource information. Plots are made on the Versatec plotter.
TACK	Reference Subsection 3.2.3.3, "Interactive System Graphics Programs."
TELL-A-GRAF	Reference Subsection 3.2.3.3, "Interactive System Graphics Programs."
VERSAPLOT	The VERSAPLOT-07 package, developed by Versatec (a Xerox company) permits users of the Versatec printer/plotter to generate grids or shaded areas with user-selected patterns. VERSAPLOT plots 100 points per inch. It can draw horizontal and vertical grid patterns and plot a smooth curve using specified points.

3.3.3.3 Batch System Mathematical and Statistical Programs

Name	Description
BMDP	Biomedical Computer Programs. From the University of California at Los Angeles School of Medicine, BMDP provides data analyses of medical cases using statistical methods and an English-like control language based on FORTRAN; BMDP runs off a FORTRAN library routine.
CROSSTABS	A Cambridge Computer Associates statistical package, CROSSTABS allows you to perform cross tabulations and related statistical analyses on both large and small datasets.

Data-Text	Data-Text is a social science package that enables you to define or translate variables, give the appropriate descriptive labels, and request a great variety of different statistical analyses. Data-Text language is flexible and easy to learn.
IMSL	Reference Subsection 3.2.3.4, "Interactive System Mathematical and Statistical Programs."
P-STAT	Reference Subsection 3.2.3.4, "Interactive System Mathematical and Statistical Programs."
SAS	Reference Subsection 3.2.3.4, "Interactive System Mathematical and Statistical Programs."
SLMATH	Subroutine Library-Mathematics. From IBM, SLMATH is a set of basic computational subroutines for solving mathematical problems involving matrix algebra and numerical mathematics. Documentation must be ordered; only a reference copy is available.
SPSS	Statistical Package for the Social Sciences. SPSS is an integrated system of computer programs designed to analyze social sciences data. This system provides the following capabilities: data transformation and file manipulation facilities, descriptive statistics, frequency distributions, cross tabulations, correlation, means and variances for subpopulations, scatter diagrams, Guttman scaling, and a variety of other statistical techniques and procedures.

3.3.3.4 Batch System Modeling Program

Name	Description
CSMP III	Reference Subsection 3.2.3.5, "Interactive System Modeling Programs."

4. SUPPORT SERVICES

4.1 GENERAL INFORMATION

Your ADP Control Officer, CSS, Applications/ODP, and various additional support services are available to assist you in using the ODP computer facilities (reference Table 4, "Directory of ODP Support Services," page 30). Each of these support activities is described in detail in the following paragraphs.

4.2 ADP CONTROL OFFICERS

Each Directorate and Office has an ADP Control Officer who serves as the primary point of contact for ADP-related activities. If the level of ADP activity requires it, additional individuals are designated to coordinate their efforts with the ADP Control Officer. Among the duties of these officers are managing magnetic disk storage space, allocating terminals, and controlling computer access (that is, userids, passwords, and PRISM numbers). The officers obtain disk space for users; submit annual disk requirements for their units in order to give ODP information needed to plan for acquiring magnetic disk storage; and, for planning purposes, keep a detailed record of disk space used by their components.

4.2.1 DISK SPACE

Disk space is a valuable and scarce resource that is controlled and closely monitored. Disk space is allocated on magnetic disks in units of tracks, cylinders, or packs. ODP provides five types of disk space: minidisks, SHARE, STOR, GIMS, and private packs.

- Minidisks are disk space on the interactive system assigned to users for their own private files. Minidisks are allocated in units of cylinders. For backup purposes, ODP copies data on minidisks to tape daily for any files changed (tapes are saved for 7 days), and weekly for all disks (tapes are saved for 5 weeks).

- SHARE (Online Direct Access Storage Device System) space is normally accessible through the batch system, but in some special cases may be made accessible to the interactive system.

- STOR space is temporary space requested in allocations of 20 or fewer cylinders at a time; STOR space is allocated for 7 days, after which it is scratched.

- GIMS space is password-protected, permanent online space assigned to a data base managed by GIMS.

- Private disk packs, both movable and permanent, may be assigned to an Agency component. Requests for large space allocations should be requested well in advance, preferably in estimates for the fiscal year prior to the year of anticipated need.

A request for disk space must be made in writing by the ADP Control Officer. Requests for minidisks, private disk packs, and space on SHARE and STOR are sent to CSS, Processing, Office of Data Processing (CSS/P/ODP); requests for GIMS space are sent to Data Base Management Branch, Production Division, Processing, Office of Data Processing (DBMB/PD/P/ODP).

4.2.2 USERIDS

The userid is a unique name that identifies you to one of the systems supported by ODP and validates your access to protected resources. A userid is usually constructed from elements of the user's name and consists of from one to eight alphabetic characters. ODP provides three types of userids: VM, ACF2, and GIMS.

- VM - A user identified to VM is automatically given access to the batch system and identified to the ACF2 security system.
- ACF2 - Userids for the ACF2 security system are assigned only if that user does not have a VM or GIMS userid.
- GIMS - GIMS userids are assigned only if the user does not have a VM or ACF2 userid.

A request for a userid must be made by the appropriate ADP Control Officer, using Form 4065, "ODP Systems Access Request." Requests for VM and ACF2 userids are sent to CSS/P/ODP; for GIMS userids, requests are sent to DBMB/PD/P/ODP.

4.2.3 PASSWORDS

Passwords are words of eight alphabetic characters and are classified SECRET. Like userids, passwords are used to prevent unauthorized access to ODP resources. ODP provides four types of passwords: VM, minidisk, ACF2, and GIMS.

- VM - This password is used to validate access to the VM Interactive System and is changed semiannually. This password should never be shared with another user.
- Minidisk - To prevent unauthorized access, permanent passwords are assigned to minidisks when minidisk space is allocated, but this password can be changed on request.
- ACF2 - ACF2 passwords are encrypted and are used to validate access to ODP batch systems; these passwords are permanently assigned, but may be changed on request.
- GIMS - This password is used to validate access to GIMS and is changed semiannually. This password should never be shared with another user.

ADP Control Officers acquire passwords for new users of ODP systems and distribute passwords to users within their units. Passwords are acquired by

completing Form 4065, "ODP Systems Access Request." Requests for VM, minidisk, and ACF2 passwords are sent to CSS/P/ODP; for GIMS passwords, requests are sent to DBMB/PD/P/ODP.

4.2.4 PRISM NUMBERS

To access any ODP resource, you must submit a valid PRISM number. These numbers consist of five mandatory and two optional alphanumeric characters that identify a particular unit's projects. PRISM numbers are assigned by the ODP Management Staff and controlled within each unit by the ADP Control Officer.

4.3 CUSTOMER SERVICES STAFF (CSS)

For both the ADP Control Officers and for users of ODP services, the primary point of contact within ODP is CSS (GA0507 Headquarters, extension [redacted]). One CSS group handles various administrative procedures essential to the maintenance of ODP systems, including issuing identifications to Agency employees who want to use the systems. This is the group with which the ADP Control Officer coordinates to obtain userids, passwords, PRISM numbers, and disk space for you. This group also is responsible for giving you access to the AIM system, upon request.

Another CSS element provides consultation on computer languages, hardware, or other user problems, through the expertise of its own members or information gathered from other ODP components or vendors. You can call CSS consultants directly for technical assistance in using an ODP facility (GA0507 Headquarters, extension [redacted]).

Through the ODP Technical Library, CSS offers you books, manuals, and other publications bearing on hardware, software, or data processing management used by or related to ODP services. These publications are available upon request by phone to the Technical Librarian (GA19 Headquarters, extension [redacted]). The ODP Technical Library is open from 8:00 a.m. to 2:00 p.m., Monday through Friday.

Lastly, the Publications Group of CSS publishes two bulletins: Tech Notes, which gives users technical information on programming or procedural matters, and Bits 'n Bytes, which includes informal, less technical coverage of ADP-related information. These bulletins are distributed to all users as new ADP developments occur. The Publications Group also edits documents for in-house developed software. ODP personnel can submit documents to the Publications Group for assistance with writing, editing, word processing, or printing services coordination as the need arises.

4.4 APPLICATIONS/ODP

Agency components can obtain professional assistance in meeting their computing requirements through the Applications arm of ODP (reference Appendix A, "ODP: Mission, Organization, and Functions," page 31).

Applications/ODP consists of four Divisions: CAMS, Systems Development, Systems Support, and Quality Assurance. CAMS Division is dedicated to the development

and maintenance of the Intelligence Community's COMIREX Automated Management System (CAMS). Systems Development Division provides new and replacement application systems such as the Automated Compensation and Information System (ACIS); other services include customer consulting, information processing services, and an Applications reference library. Systems Support Division maintains application systems that it has developed or been assigned and provides enhancements to existing systems. Quality Assurance Division develops system standards and trains data processing professionals.

User Offices that need programming assistance must complete Form 930, "Computer Applications Request/Action Form," and send it to the office of the Deputy Director for Applications (2D60 [redacted] STAT

4.5 OTHER SUPPORT SERVICES

In addition to the ADP Control Officer and CSS, ODP provides several additional support services:

- Trouble Desk - If you experience problems with your terminal, have a problem using one of the ODP services, or want the current status of systems, personnel at the Trouble Desk are available to assist you by phone, 24 hours-a-day (5D55 Headquarters, extension [redacted] The Trouble Desk is part of the Data Base Control Center of DBMB/PD/P/ODP. STAT

- Centralized Library System - This library, part of Production Division of Processing, manages and maintains security for centrally stored libraries (source and executable load modules) of production applications (1H5126 Headquarters, extension [redacted] STAT

- Hard-Copy Output - ODP offers four printing services for high-quality, hard-copy computer output:

  - The Xerox 9700 laser printer (reference Section 2, "Hardware"). You can direct output to this printer from the batch system, or from the interactive system through BATCHMON, by means of JES3 statements. Questions on this service should be directed to CSS/P/ODP (GA0507 Headquarters, extension [redacted] STAT

  - The IBM 6670 laser printer (reference Section 2, "Hardware"). You can send files to this printer by using the OS6 command available on the interactive system. Questions on this service should also be directed to CSS/P/ODP (GA0507 Headquarters, extension [redacted] STAT

  - ETECS (reference Section 2, "Hardware"). An ETECS Coordinator in GJ56 Headquarters is available to assist you with the data preparation and paperwork necessary to use ETECS (GJ56 Headquarters, extension [redacted] STAT

  - The DICOMED COM system for computer output microfilm (reference Section 2, "Hardware"). The COM equipment processes tape input. To obtain any COM service, you must complete Form 3487, "COM Processing/Microform Request," and mail or hand-carry it to the COM Center (GJ4004 Headquarters, extension [redacted] STAT

- Data Processing Training - In conjunction with OTE, ODP provides formal courses in data processing ranging from basic instruction to highly sophisticated concepts. For information on available courses and enrollment, contact your unit's Training Officer. The Agency also offers self-study audio and audio-video courses in data processing at the Self-Study Center, GJ68 Headquarters, extension [redacted] STAT

Table 4. Directory of ODP Support Services

Service	Contact
Centralized Library	Centralized Library PCB/PD/P/ODP 1H5126 Headquarters Extension [redacted] STAT
Computing Requirements	Applications/ODP DD/A/ODP 2D60 [redacted] STATINTL Extension 8367
Consulting and Administrative Services	Customer Services Staff CSS/P/ODP GA0507 Headquarters Extension [redacted] STAT
Data Processing Training	Your unit's Training Officer
Documents and Publications Support	ODP Technical Library GA19 Headquarters Extension [redacted] STAT
Special Output Services	
IBM 6670 and Xerox 9700 laser printers	Customer Services Staff CSS/P/ODP GA0507 Headquarters Extension [redacted] STAT
ETECS	ETECS Coordinator GJ56 Headquarters Extension [redacted] STAT
COM	COM Center GJ4004 Headquarters Extension [redacted] STAT
System Access (userids, passwords, PRISM numbers, minidisks, and disk space)	ADP Control Officer
Trouble Desk	Trouble Desk DBMB/PD/P/ODP 5D55 Headquarters Extension [redacted] STAT

APPENDIX A. ODP: MISSION, ORGANIZATION, AND FUNCTIONS

ODP provides a central computer service to Agency components and to the Intelligence Community. This mission is accomplished through two major units, Processing and Applications, and a Special Projects Staff (reference Figure A-1, "ODP Organization," page 33).

The Processing unit maintains ODP's hardware and associated systems as well as production software. Processing consists of four Divisions--Production, Systems Programming, Engineering, and Operations--and the Customer Services Staff (CSS).

- Production supports such Agency applications as payroll, general accounting, personnel, and message processing; it provides ODP services ranging from data entry to preparation of finished reports; and it staffs the Data Base Control Center on a 24-hour, 7 days-a-week basis to maintain the GIMS online system.

- Systems Programming designs, installs, and maintains operating systems, data base management systems, and systems-related software on ODP computers. Systems Programming also plans for the installation of advanced technology. It currently supports the interactive and batch systems and the GIMS online system.

- Engineering is responsible for the reliability and stability of ODP equipment. This Division acquires, installs, and maintains ODP computer and terminal hardware; monitors Processing's budget and prepares budgetary documentation for current and future fiscal years; studies and reports on computer performance and coordinates planning to meet future requirements; manages ODP's remote data terminal network; and manages Agency word processing activities.

- Operations maintains three major computer centers in the Headquarters building and offers automatic data processing (ADP) services at buildings outside Headquarters. General users of ODP facilities normally deal with the Ruffing Computer Center (RCC), GC03 Headquarters; the Special Computer Center (SCC), GC47 Headquarters, exclusively supports the Directorate of Operations. The third computer center is used by the Special Projects Staff.

- Customer Services gives you, the users of ODP services, a point of contact within ODP. This Staff helps clients throughout the Agency use ODP facilities more effectively by: providing consulting services; handling administrative functions such as userids, system passwords, and storage allocation; and publishing technical and nontechnical documents. It also includes a Technical Library, which distributes technical publications.

ODP's other major unit, Applications, develops, implements, and maintains applications software on ODP central and stand-alone computers to support missions of various Agency components. It consists of four Divisions: CAMS, Systems Development, Systems Support, and Quality Assurance.

- CAMS, the smallest Division in terms of assigned staff personnel, is responsible for the design, development, support, and enhancement of the Intelligence Community's COMIREX Automated Management System (CAMS). Most of CAMS' supporting software is developed by contractor firms; staff personnel primarily perform contract monitoring and administration functions.

- Systems Development produces both new and replacement computer applications to support Agency needs. Typical applications are the Automated Compensation and Information System (ACIS), the Logistics Integrated Management System (LIMS), and the Personnel Resources Information Management (PRIM) System. In addition, this Division provides services that include: customer consulting, information processing services, and an Applications' reference library.

- Systems Support maintains application systems (which may be developed by Systems Support Division or assigned to it) and provides enhancements to existing systems for client offices within the Agency.

- Quality Assurance develops standards, procedures, and guidelines for use throughout Applications and ensures that the standards developed are met during the system's life cycle. This Division also provides and maintains a centralized Applications documentation and software library, supports configuration control boards, and tracks and reports on work being done throughout Applications. In addition, the Quality Assurance Division has a Training Staff, which is responsible for training data processing professionals (the Office of Training and Education, OTE, is responsible for training data processing users).

Finally, ODP's Special Projects Staff is responsible for a joint Agency/Defense Intelligence Agency (DIA) project called SAFE (Support for the Analysts' File Environment). This project is designed to satisfy the needs of intelligence production analysts and users in the Agency and DIA.

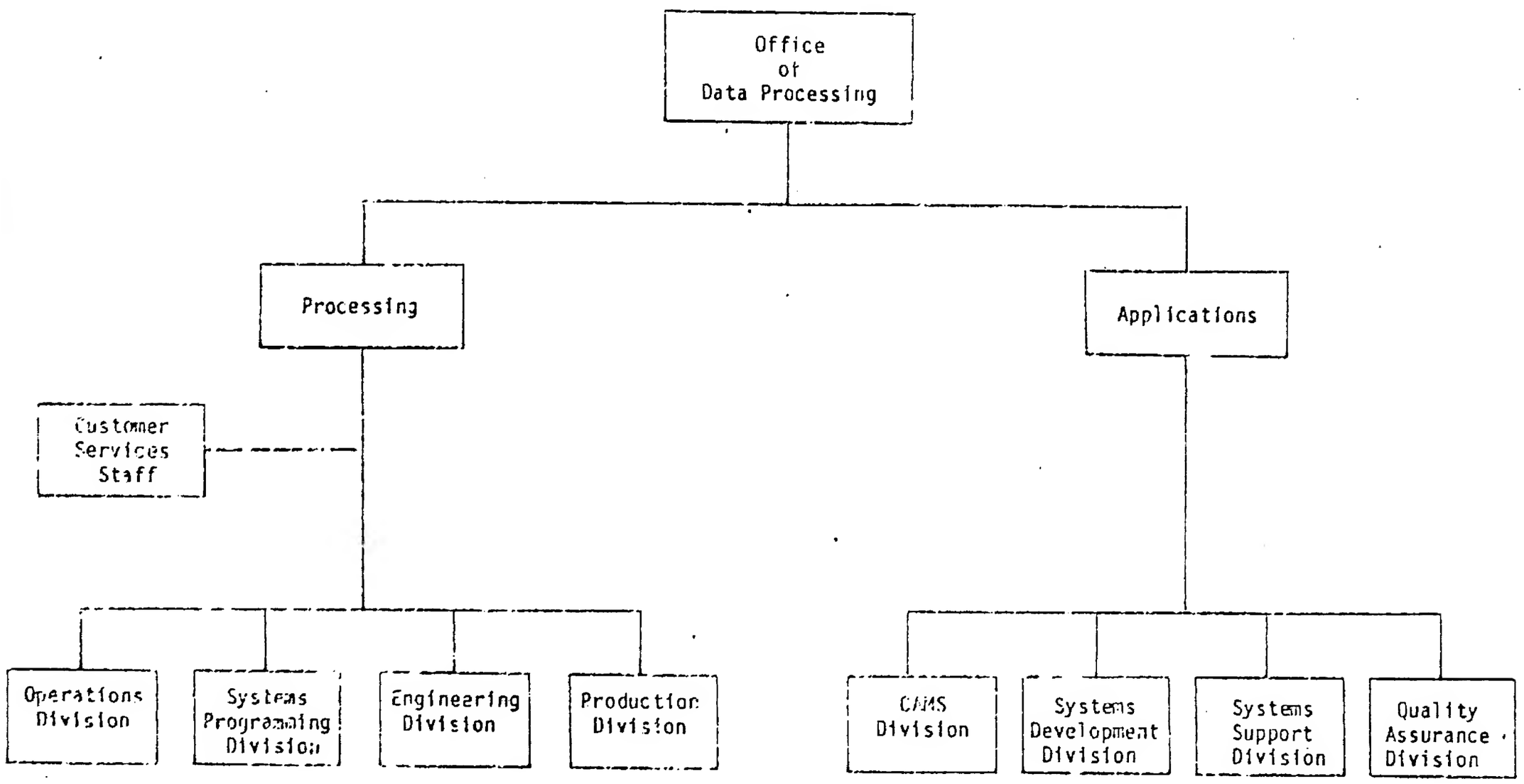

Figure A-1. ODP Organization

APPENDIX B. ACRONYMS AND ABBREVIATIONS

ACF2	Access Control Facility
ACIS	Automated Compensation and Information System
ADP	Automatic data processing
AED	Advanced Electronic Design
AIM	Automatic Information Management
ALC	Assembly Language Code
APL	A Programming Language
ASG/CPAS	Analytic Support Group, Office of Current Production and Analytic Support
BASIC	Beginner's All-Purpose Symbolic Instruction Code
BATCHMON	Batch Monitor (software package)
BC	Batch Command (in BATCHMON)
BMDP	Biomedical Computer Programs (UCLA)
bpi	Bits-per-inch
BDS	Bulk Data Service
CAMS	COMIREX Automated Management System
CDS	Cable-Dissemination System
CMS	Conversational Monitor System
COBOL	Common Business-Oriented Language
COM	Computer output microfilm
CP	Control Program
CPS-1	Contour Plotting System 1
CPU	Central processing unit
CRT	Cathode-ray tube
CSMP III	Continuous System-Modeling Program III
CSS	Customer Services Staff
DIA	Defense Intelligence Agency
DISSPLA	Display Integrated Software System and Plotting Language
DYNAMO	Dynamic Models program
ECO	Extendable Charting Option
ETECS	Electronic Text-Editing and Composition System
FEP	Front-end processor
FORTRAN	Formula Translation
GIMS	Generalized Information Management System
GPSS	General Purpose Simulation System
I/O	Input/output
IMSL	International Mathematical and Statistical Library
JES3	Job Entry Subsystem 3
LIMS	Logistics Integrated Management System

MPS	Message Processing System
MPSX/370	Mathematical Programming System Extended/370
MVS	Multiple Virtual Storage
ODP	Office of Data Processing
OTE	Office of Training and Education
P&PD	Printing and Photography Division
PL/I	Programming Language I
PLOT 10	Plot 10 Terminal Control System
PRIM	Personnel Resources Information Management System
PRISM	Project and resources information systems
RAMIS	Rapid Access Management Information System
RCC	Ruffing Computer Center
RCP	Remote concentrator processor
SAFE	Support for the Analysts' File Environment
SAS	Statistical Analysis System
SCC	Special Computer Center
SHARE	Online Direct Access Storage Device System
SLMATH	Subroutine Library-Mathematics
SPSS	Statistical Package for the Social Sciences
STOR	Space or cylinders for temporary storage
TAPEMON	Tape Monitor
TMS	Tape Management Software
userid	User identification
VM	Virtual Machine (IBM)

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